

**SYNTHETIC MOLECULES FOR LABELING HISTIDINE-RICH PROTEINS****ABSTRACT OF THE INVENTION**

The invention provides Zn-chelating compounds that are molecularly engineered to bind to a specific target sequence in a protein of interest. The Zn<sup>2+</sup> ion is far less toxic and promiscuous than nickel and therefore provides an attractive alternative to Ni-based labeling systems. Invention Zn-chelating compounds also do not require oxidizable thiols and therefore can be used in non-reducing environments such as the surface of living cells. In addition, the target sequence is genetically encodable and requires incorporation of only a few amino acids, unlike fusions to fluorescent proteins such as GFP.